

```

                ↓      ↓ ↓
27      AVSPKTYKDADFVYVAPTQQDVNY___DLVDDFGANGNDTSD 64
      |      |      |      |      |      |      |      |
28      DTSEISEVPTELRAAASSFYTPPGQNVRRANKKNLVTDYGVNHNDQND 74
↓
65      DSNALQRAINAI SRKPNGGTILLIPNGTYHFLGIQMKSNVHIRVESDVI IK 114
      ||      |      |      |      |      |      |      |
75      DSSKLNLAIKDLS___DTGGILTL PKGKY YLTKIRMRSNVHLEIEKGTIVTY 122
                ↓
115     PTWN GDGKNHRLFEVG___VNNIVRNFSFQGLGNGFLVDFKDSRDKNLAV 161
      ||      ||||      |      |      |      |      |      |
123     PTKGLTPAKNHRIFDFASKTEEKIENASIVGKGGKFTVDLRGNSSKNQIV 172
                ↓      ↓
162     FKLGDVRNYKISNFTIDNKTIFASILVDVTERNGRLHWSRNGIIERIKQ 211
      |      |      |      |      |      |      |      |
173     ADVGNVINFKISNFTIKDEKTIFASILVSFTDKAGN_AWPHKGIIENIDQ 221
                ↓      ↓ ↓
212     NNALFGYGLIQTYGADNILFRNLHSEGGIALRMETDNLMLKNYKQGGIRN 261
      ||      ||||      |      |      |      |      |      |
222     ANAHIGYGLIQAYAADNILFNNL SCTGGVTLRLETDLAMKTAKKGGVRD 271
                ↓
262     IFADNIRCSKGLAAMFPGPHFMKNGDVQVINVSSVSCGSAVRSDSGFVEL 311
      |||      |      ||      |||      |||      |      |      |
272     IFATKIKNINGLTPVMFSPHFMENGKVTIDDVTAIGCAYAVRVEHGFIEI 321
                ↓
312     FSPTDEVHTRQSWKQAVESKLGRGCAQTPYARGNGGTRWAARVT___OKD 358
      |      |      |      |      |      |      |      |
322     FDKGNRASA_DAFKNYIEGILGAGSVEVVKRNNGR_TWAARIANDFNEA 369

359     ACLDKAKLEYGIEPGSFSGTVKVFDTVTRF_GYNADLKQDQLDYFSTSNPM 407
      |      |      |      |      |      |      |      |
370     AYNHSNPAVSGIKPGKFATSKVINVKATYKGTGAKLKQAFLSYLPCSER_ 418
                ↓
408     CKRVCLPTKEQWSKQGQTYIGPSLAVID_TTPETSKYDYDVKTFFNVKRI 457
      |      |      |      |      |      |      |      |
419     SK_VCRPGPDGFE_____YNGPSLGVTIIDNTRDNLGNYNVNVSTSSVQ 462

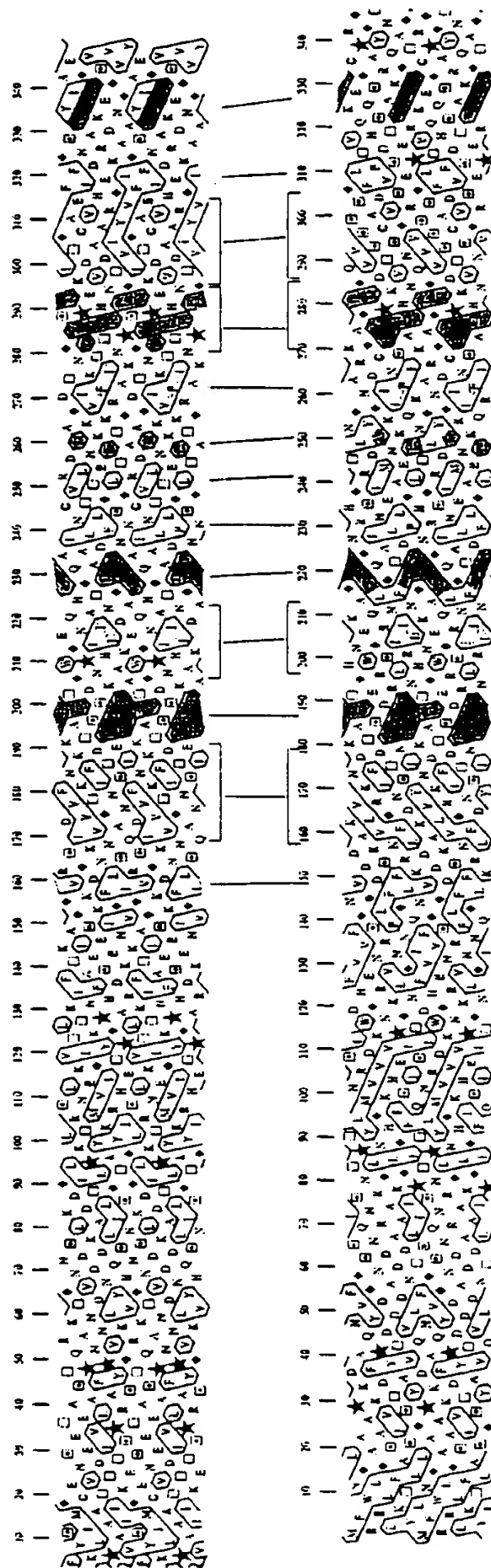
457     NFPVNSHKTIDINTESSRVCNYY_QMSECSSSRWER 491
      |||      |      |||      |      |
463     GFPNNYVLNVKYNT___PKVCNQNLG_SITSCN 491

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FIG.1

*Cytophaga drobachiensis* iota-carrageenase

HCA 2.5.0



*Alteromonas fortis* iota-carrageenase

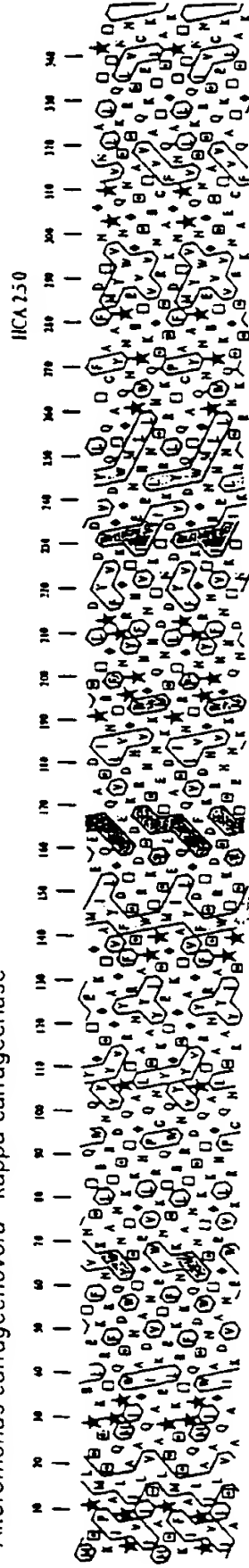
FIG.2

1	MKQPNFYGKMGR	TALSS	LFYLF	FLGLVY	GOOPT	TKTSNP	NDQWT	IKWSAS	DEFN_KN	DPDW	59	
1	MKQ	ISIVAF	PIPAIS	MLLSAV	SQAASM_	QPPIAK_	PGETWIL	QAKRS	DEFNVK_	DAT_	55	
60	AKWIK_	TGNLP	NTSAWK	WN_NQ	KNVKIS	NGIAEL	TM_RH	NANNT	PPDGGT_	YF_	108	
56	_KWN	FQTE	NYGV	WS_WK_	NENAT_	V_SNG	KLKL	TTKRE	SHQRT	FWDGC	NQQQVANYPLY	109
109	_TSG	IFKSY	QKFTY	GYFEA	KIQGA	DIGEG	VCPSF	WLYSD	FDYSV	AN_GET	VYSEIDVVEL	166
110	YTSG	VAKS	RATG	NYGY	EARIK	GASTF	PGVSP	AFW	MYSTI	DRSLT	KEGDVQYSEIDVVEL	169
167	QQFD	WY_EGH	QDDI	YDMD	LNHL	HAVVK	ENGQ	GVWKR	PKMYP	QEQLN	KWRAM_DPSKDFHIY	224
170	TQKS	AVRES_	DH_DLH_	NI_VVK_	NGKPT	WMRPG	SFPQT	NHNGY	HLPF	DP	RNDFTY	221
225	GCEV	NQNEI	IWYVD	GVE_	VARKP	KNKYW	HRPM	NVTLS	SLGLR	KPFVK	FFDNKNNAINPETDA	283
222	GVN	VT	KDKIT	WYVDG_	EIVGE	KONLY	WHRQ	MNLT	LSQGL	RAPHTQW_	KCNQFYPSAN_	276
284	K_	AREKL	SDIPT	SMYVD	YVRV	WEKS	SAGNT	TNPPT	SEVGT	LKTG	SKLVIDHWDASTGTIS	342
277	KSA_	EGF_	PTSME	VDYV	RTWV	KVGN	NNSAP	GEGQ	SCPNT	FVAVN	SVQLSAAKQTLRKG	332
343	AVS	NNTK	TGQY	AGSV	NNASIA	QIVTL	KANTS	YKVS	AFGK	ASSPG	TSAYLGISKASNNELI	402
333	QST	TLEST	VLPNC	ATNKK	KVIYSS	SNKN	VATV	NSAGV	V_KAK	NKGTATITV	TKNKGKIDKL	392
403	SNFE	FKTTS	YSKGE	IEIRT	GNVQ	ESYRI	WYWSS	GQAYC	DDFNL	VEIN	SGASQLNENETET	462
393	TI	AVN										397
463	ALEK	GIHI	YPNP	YKNG	PLTID	FGKPF	SGEV	QITGL	NGRTF	LRRNV	VDQTSVQLLESKSKF	522
523	KSG	LYIV	KISG	PDGE	VSKIL	VE						545

FIG.3

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*Alteromonas carrageenovora* kappa-carrageenase



*Cytophaga drobachensis* kappa-carrageenase

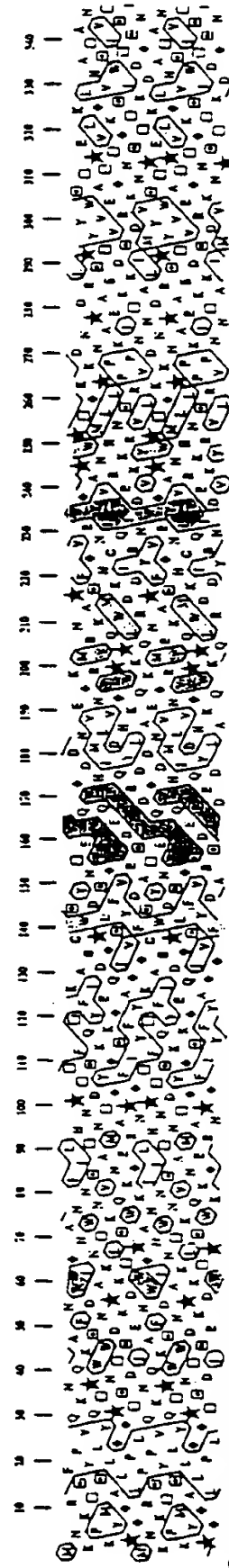


FIG. 4